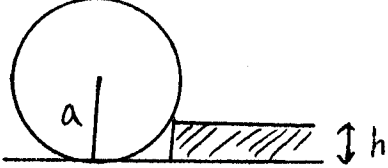


25%¹. Solve the motion of a Foucault pendulum.
(Hint: you have to consider the effect of the Coriolis force)

25%². Prove that a steady precession can occur at fixed angle of inclination for a symmetric top only if the angular velocity of spin is larger than some limiting value.

25%³. A ball of radius a rolling with velocity v on a level surface collides inelastically with a step of height $h < a$, as shown. Find the minimum velocity for which the ball will "trip" up over the step.



25%⁴. Derive the Hamilton's equations of motion.